

## Patent Abstracts of Japan

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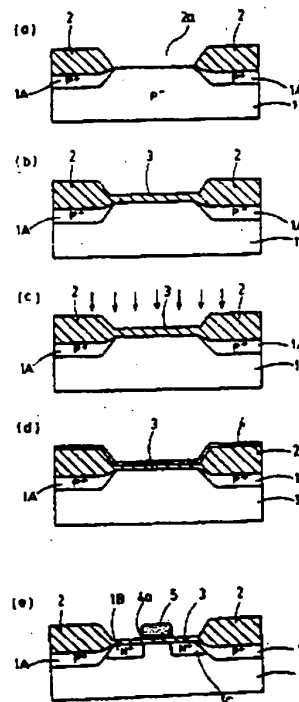
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TITLE : MANUFACTURE OF MOS  
 SEMICONDUCTOR DEVICE



ABSTRACT : PURPOSE: To obtain a MOS semiconductor device of double insulating film structure having a uniform performance by implanting ions of metal atoms of Al, Ti and oxygen atoms into the surface layer of an oxide film coated on a substrate when forming a gate electrode in the semiconductor device, and forming the gate electrode on an oxide layer obtained by heat treating.

CONSTITUTION: A thick field oxide film 2 laid on a P<sup>+</sup> type channel cut region 1A is formed on the surface edge of a P<sup>+</sup> type Si substrate 1, and a thin gate oxide film 3 is coated on the exposed surface 2a surrounded by the film 2. Then, ions of at least one metal atoms of Al, Ti, Ta, W, Zr, Hf, Pb and oxygen atoms are implanted into the surface of the films 3, 2, heat treated at 1,000°C for 10min in N<sub>2</sub> atmosphere to form a thin oxide layer 4 of metal atoms on the surface layers of the films 3, 2. Thereafter, polycrystalline Si layer is accumulated on the film 4, etched to allow a gate electrode 5 to remain through the film 4a, source region 1B and drain region 1C are diffused at both sides.

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